

Remarks

Drawings

Examiner requests Figure 1 is designated 'Prior Art'. A suitably corrected first sheet of the drawings is submitted as a replacement sheet with this response, which labels Figure 1 as 'Prior Art'. Approval is requested.

Claim Rejections – 35 USC § 102

Examiner rejects claims 1-3, 6, 10-12, 15-25, 27, 31-33 and 36-40 under 35 U.S.C. 102(b) as being anticipated by *Fette et al.* (US 5,612,948). No amendments are offered to the claims as Applicants believe the claims clearly distinguish over *Fette*.

The present invention provides a way of load balancing between beams of a base station. As described at page 1 line 21 to page 2 line 13, a significant problem in wireless systems is matching load on a beam with the available resources of that beam. In accordance with claim 1 of the present invention, if a direct communication link between a base station and a terminal cannot be supported by a first beam, an indirect, multi-hop, path is provided using a second beam and a relaying equipment. In this way, a communication link can be established with a terminal even where the first beam has insufficient resources to support a link to the terminal. Figure 5 of the present application shows how a terminal T5 positioned within an overloaded beam 60 can be served by a relay R3 positioned in more lightly loaded beam 63. Claim 1 of the present invention includes the limitations of:

"to determine if a direct communication link can be supported between a new terminal and a base station using a first beam"

and

"if the direct communication link cannot be supported, to invoke use of the relaying equipment to provide a first communication link between a base station and the relaying equipment using the resources of a second beam."

Fette fails to teach, or hint at, the use of first and second beams in this way.

Fette describes a cellular network which addresses the problem of providing coverage to subscribers. *Fette* notes (see col.1 lines 41-48) that obstructions such as hills and buildings can prevent a direct line-of-sight path with a subscriber at high frequencies. *Fette* addresses this problem by allowing a base node (12) to communicate with a subscriber node (16) via a subscriber node (16') which acts as a repeater. While *Fette*, at col.3 lines 62-64, describes in passing how "network 10 may utilize spatial diversity obtained through diverse antenna beams projected in different directions" *Fette* does not describe, or even suggest, attempting to use a first beam for a direct link to subscriber (16) and, failing that, using the resources of a second beam for a link to a relay (16'). It is respectfully noted that neither of the passages to which Examiner has referred (col.3 lines 41-57, col.4 lines 22-65) provide basis for this rejection. The passage at col.3 lines 41-57 describes the use of repeating subscriber node (16') and the passage at col.4 lines 22-65 describes the discovery and selection of nodes. Neither passage mentions the use of different beams.

Fette is not concerned with the problem of load balancing between beams of the base node and does not propose any solution to that problem. Indeed, looking at the flow chart at Figure 8 of *Fette*, if a direct link cannot provide the required data rate to a subscriber (step 98, output 'N') and an indirect link cannot provide the required data rate to the subscriber (step 102, output 'N') *Fette* teaches that an attempt should be made to use a slower data rate (see col.8 lines 42-49). *Fette* does not even consider the possibility of using the resources of a second beam. Accordingly, *Fette* fails to teach, or even hint at, the use of first and second beams in the manner recited in claim 1 of the present application.

Independent Claims 20, 21, 22, 23, 39 and 40 are considered allowable for the same reasons as claim 1.

Rejected Claims 2, 3, 6, 10-12, 15-19, 24, 25, 27, 31-33 and 36-38 are considered allowable by virtue of being dependent on an allowable base claim.

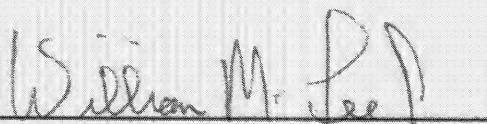
Claim Rejections – 35 USC § 103

Examiner rejects claims 4, 5, 7-9, 13, 14, 26, 28-30, 34, 35 under 35 U.S.C. 103(a) as being unpatentable in view of a combination of *Fette* and one or more other references. The rejections against these claims are rendered moot in view of the arguments presented above in support of the base claims on which these claims depend. Applicants make no admissions in respect of the Examiner's rejections or arguments raised in this section of the Action.

For the foregoing reasons, Applicants respectfully submit that the claims pending in this application are in condition for allowance. Early issuance of a Notice of Allowance is solicited.

May 17, 2006

Respectfully submitted,



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